



Alert Geomaterials Doctoral School 2025

Closing Session

Questions

- Quizz results:

1. At the start of the school

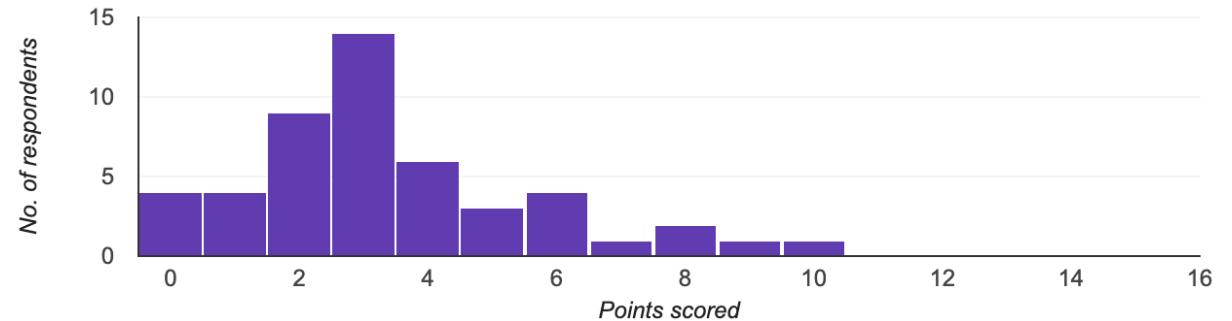
2. At the end of the school

Average
3.45/15 points

Median
3/15 points

Range
0-10 points

Total points distribution

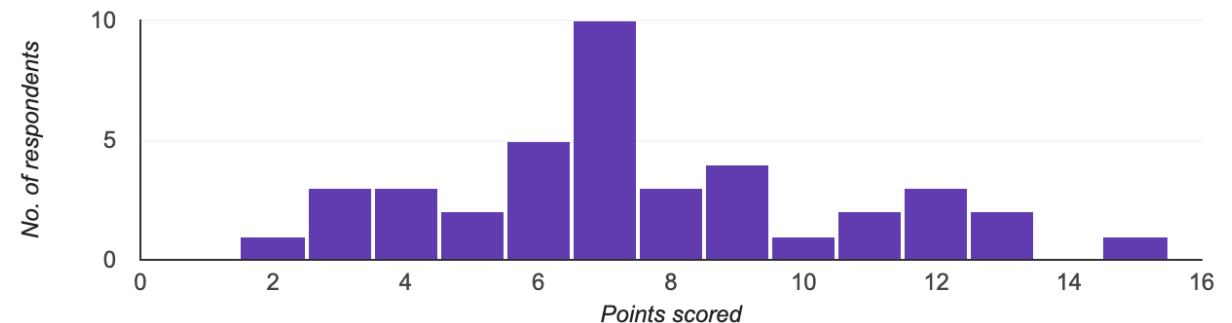


Average
7.55/15 points

Median
7/15 points

Range
2-15 points

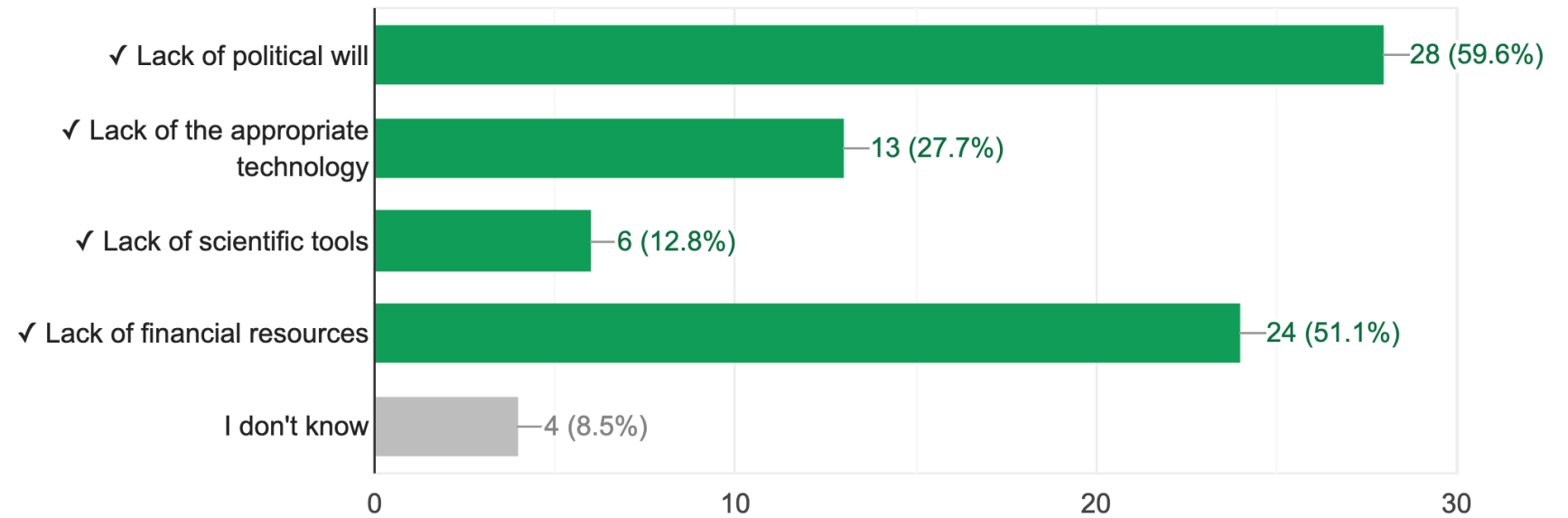
Total points distribution



Questions

What is the main bottleneck in the energy transition?

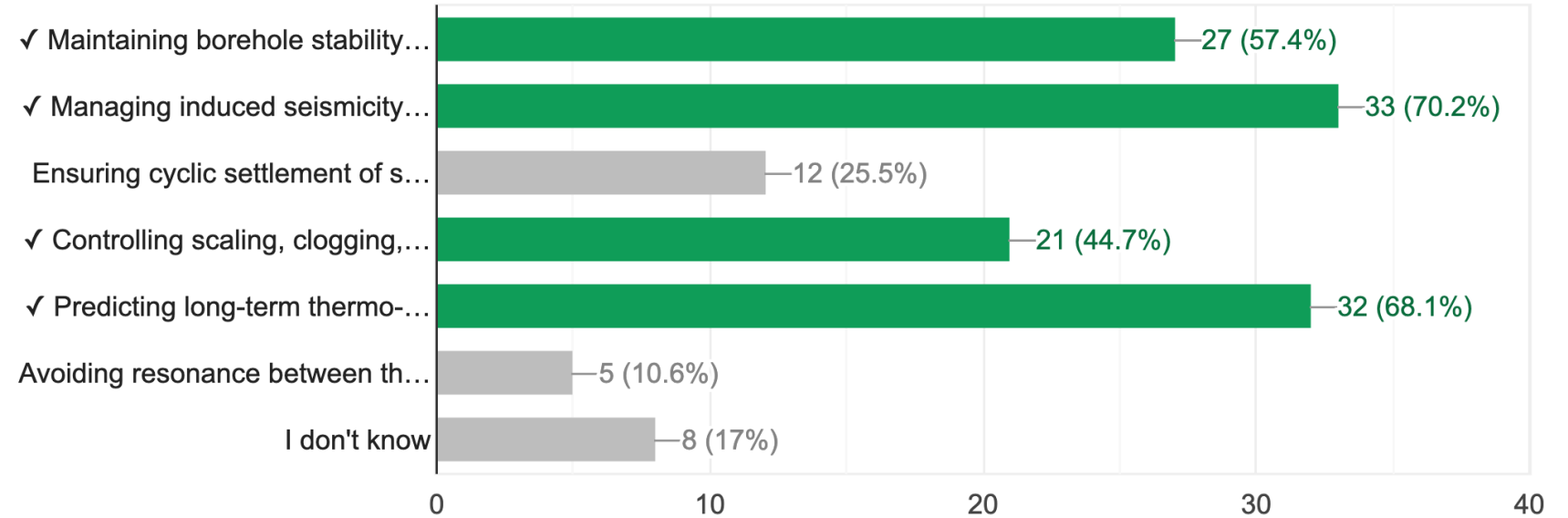
4 / 47 correct responses



Questions

In the context of deep geothermal energy systems, which of the following are key geotechnical and geomechanical challenges?

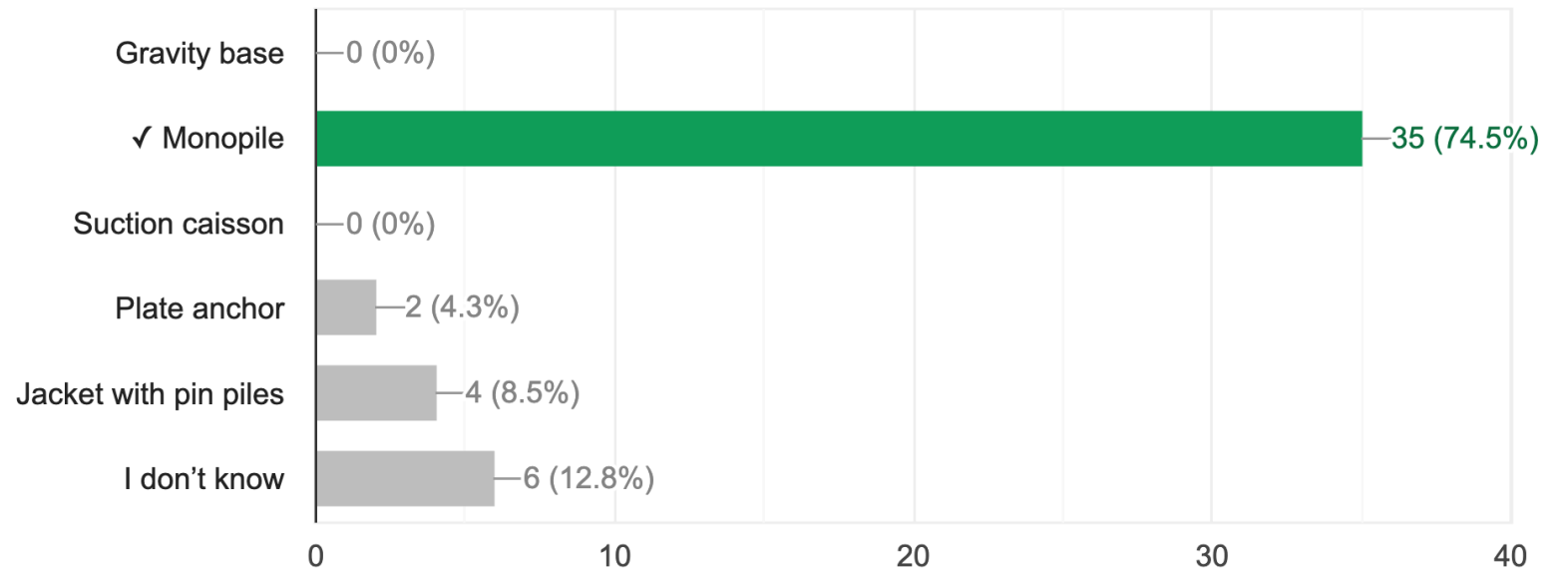
9 / 47 correct responses



Questions

What type of foundations represent the majority of offshore wind turbines?

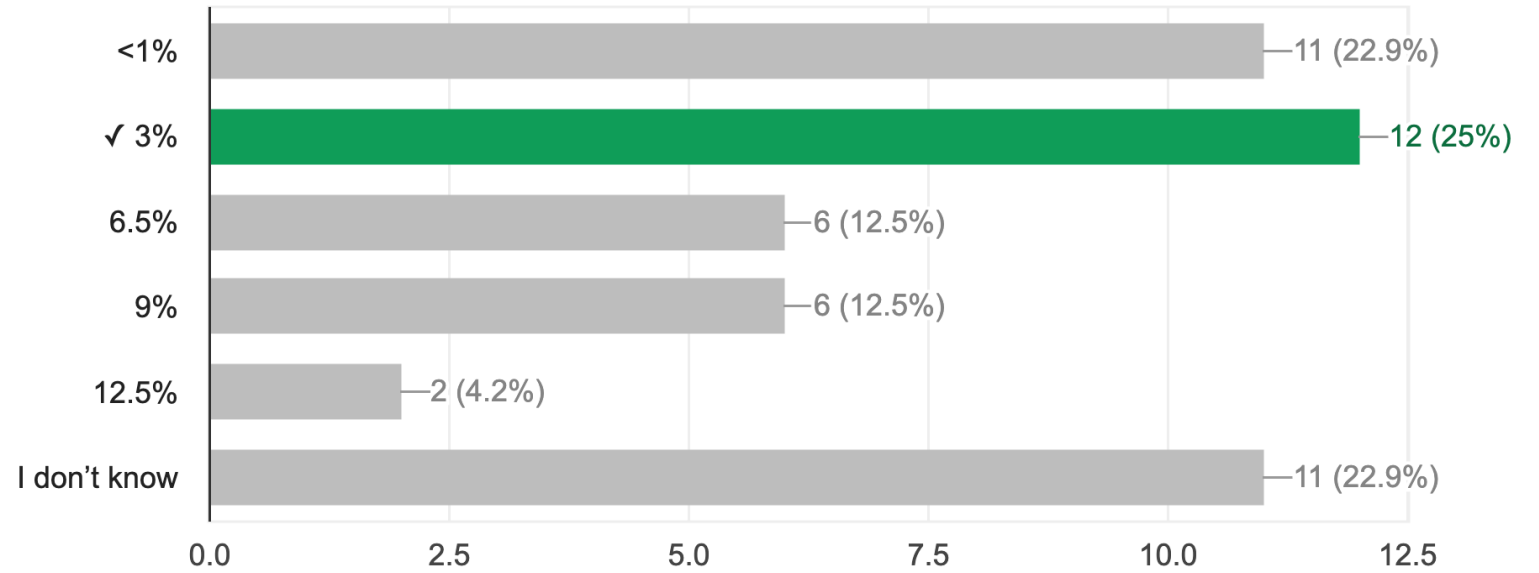
35 / 47 correct responses



Questions

How much of the global energy need does wind energy produce today?

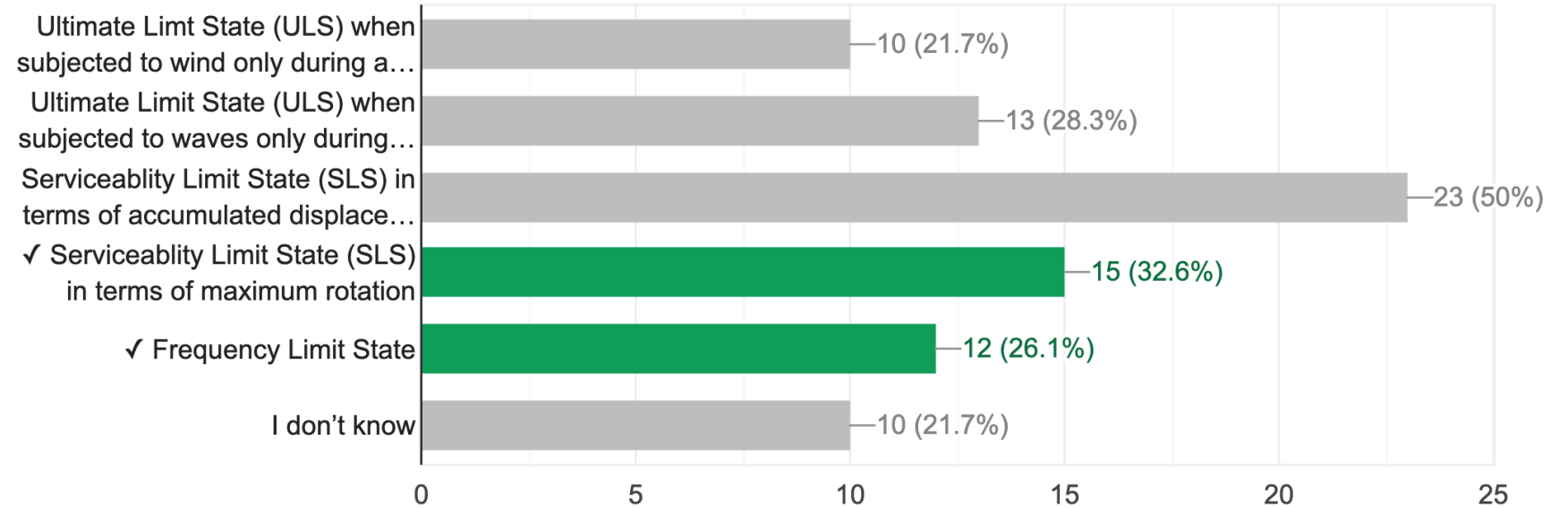
12 / 48 correct responses



Questions

Which criterion (or criteria) is/are usually critical for the design of fixed bottom foundations for Offshore Wind Turbines?

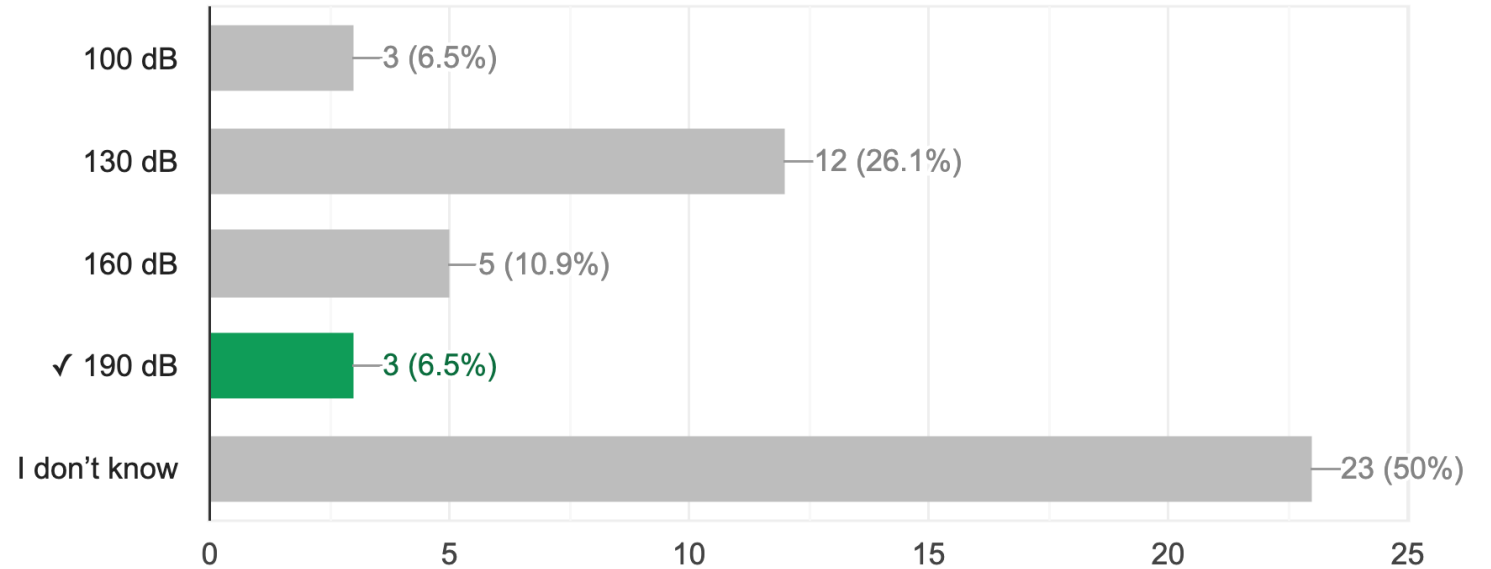
1 / 46 correct responses



Questions

How much acoustic energy is measured 750 m away from the offshore wind turbine foundation during installation by impact ? (assess the underwater typical of modern offshore wind turbine designs)

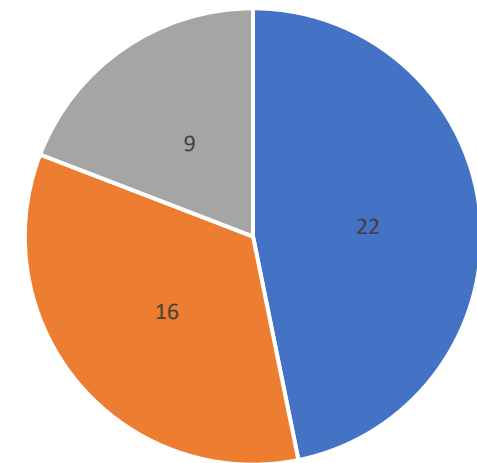
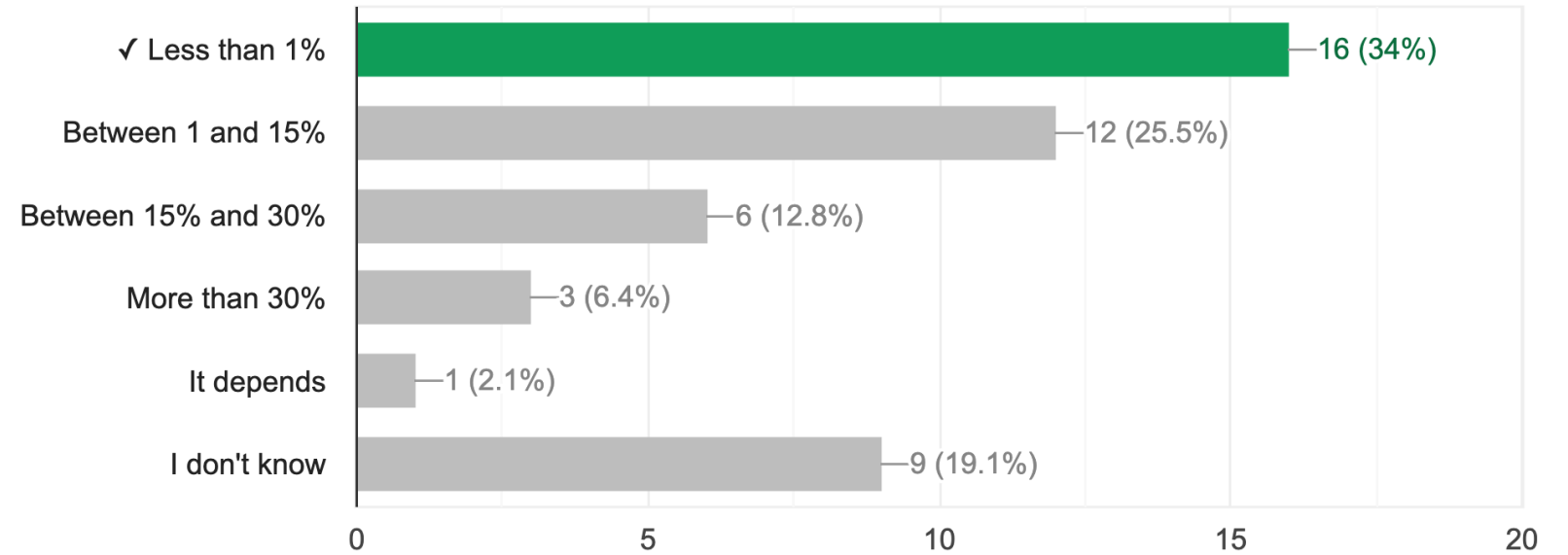
3 / 46 correct responses



Questions

What percentage of the total radioactive waste volume is high-level waste?

16 / 47 correct responses

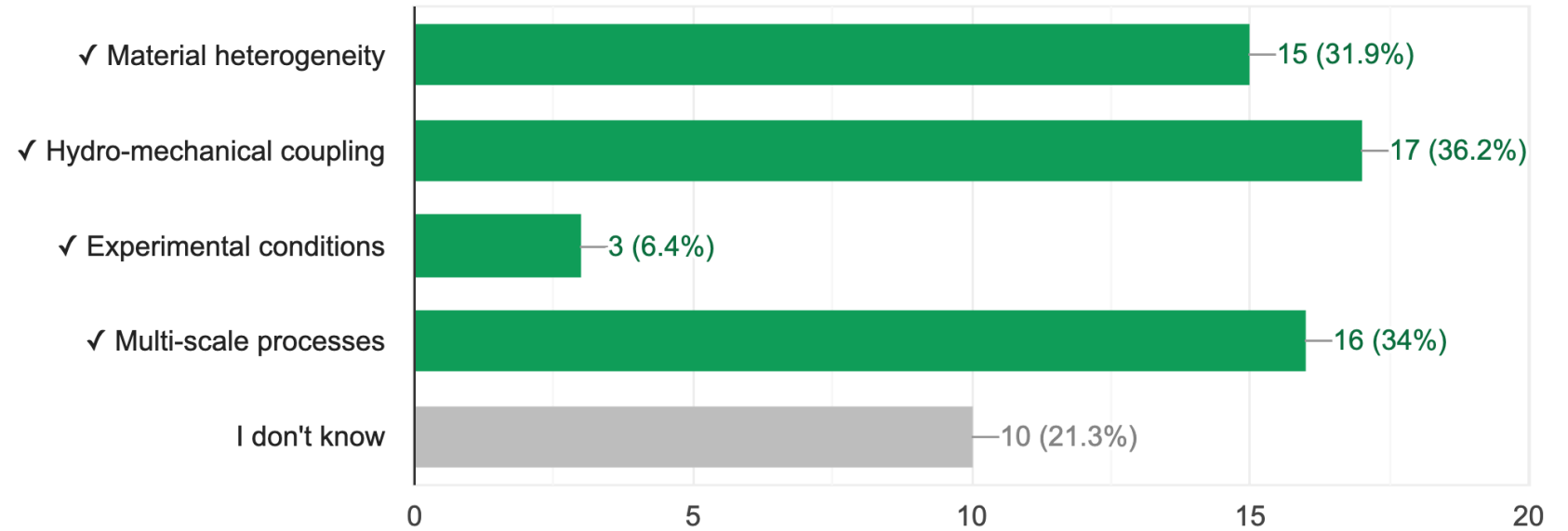


■ Incorrect ■ Correct ■ I don't know

Questions

Which physical mechanism(s) best explain the discrete flow of gas in low-permeability clays?

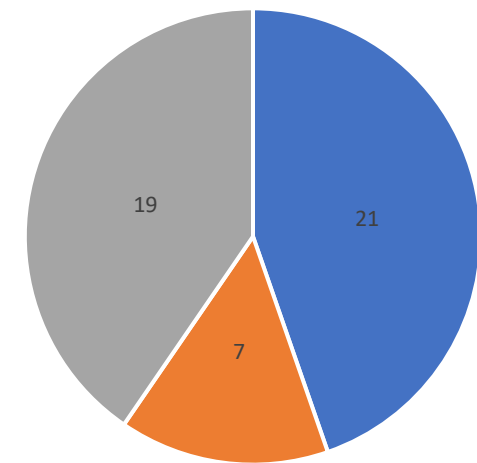
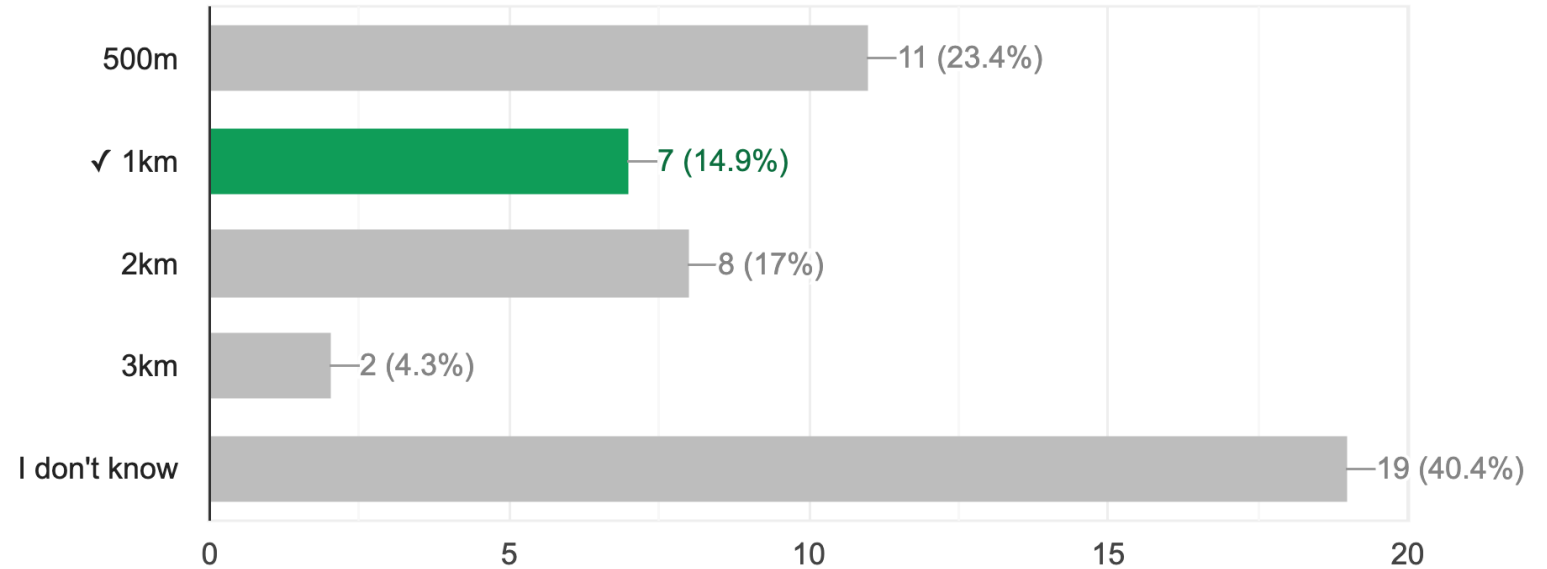
1 / 47 correct responses



Questions

When hydrogen is stored underground, it can serve as an energy source for microbes. At what approximate depth does microbial growth typically become seriously inhibited?

7 / 47 correct responses

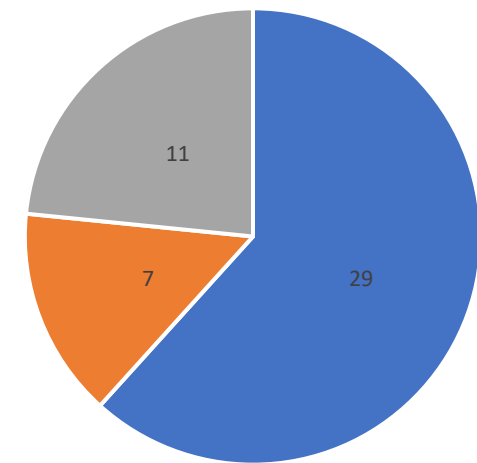
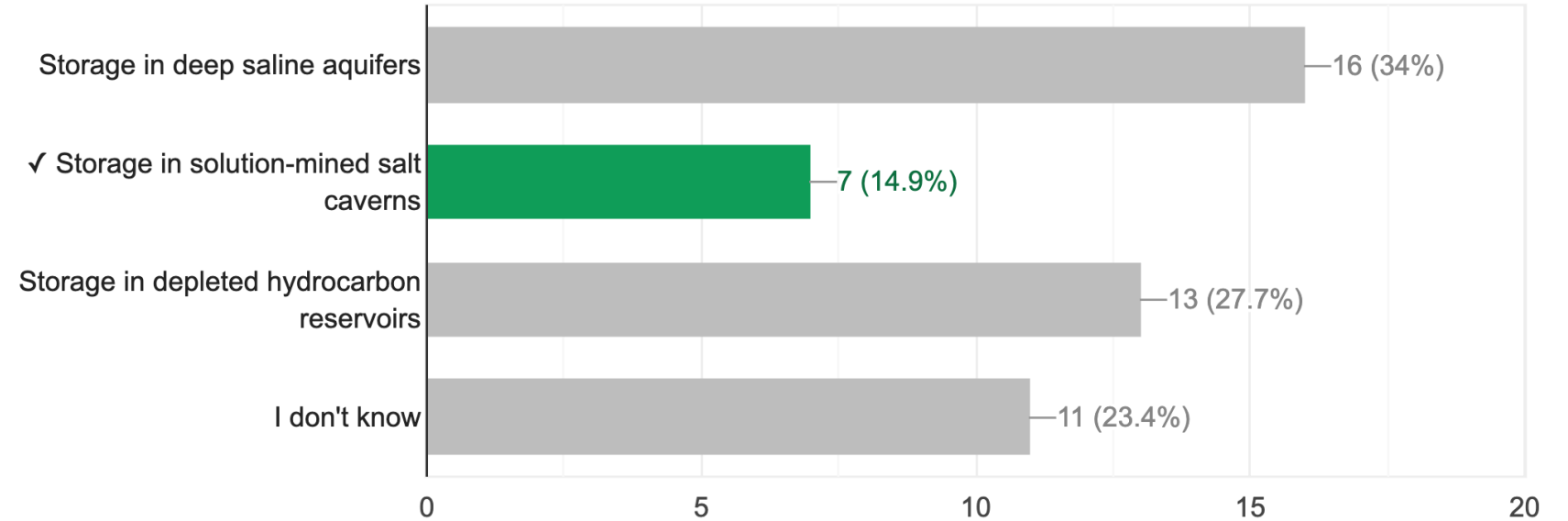


■ Incorrect ■ Correct ■ I don't know

Questions

Among the following options for geological hydrogen storage, which technology is currently considered the most technically mature and commercially deployable?

7 / 47 correct responses

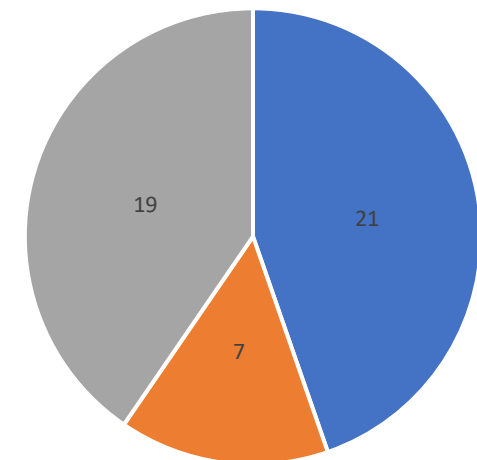
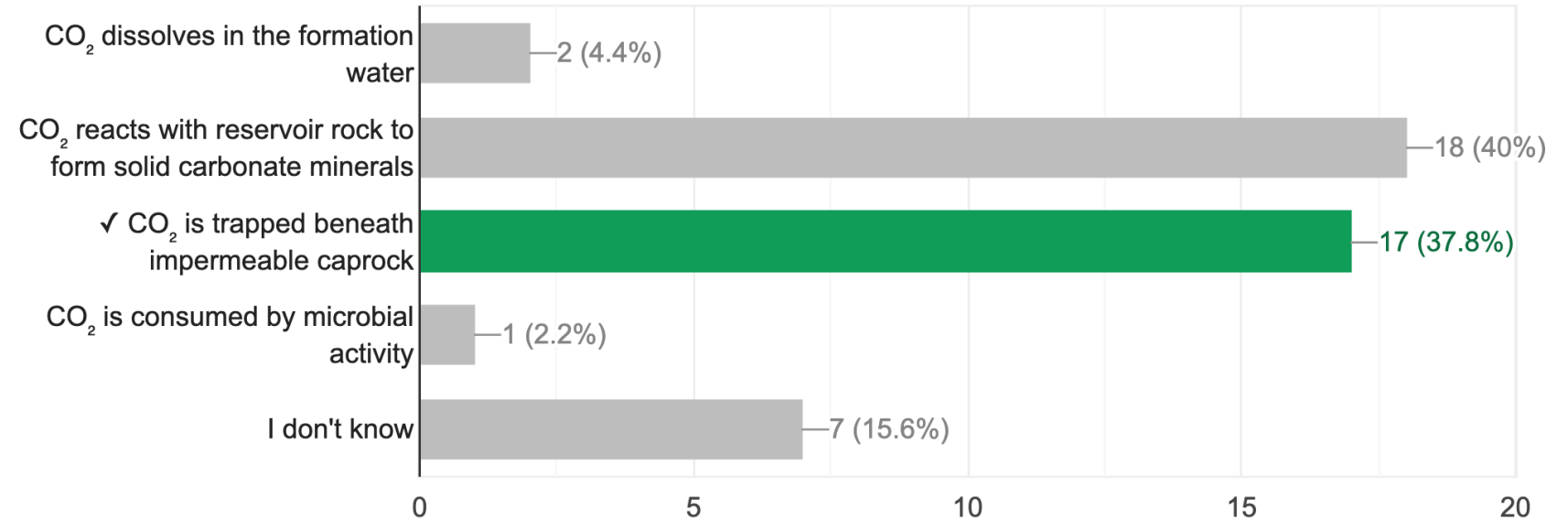


■ Incorrect ■ Correct ■ I don't know

Questions

Which mechanism best explains why injection of CO₂ into a deep saline aquifer can provide a long-term carbon reduction strategy?

17 / 45 correct responses

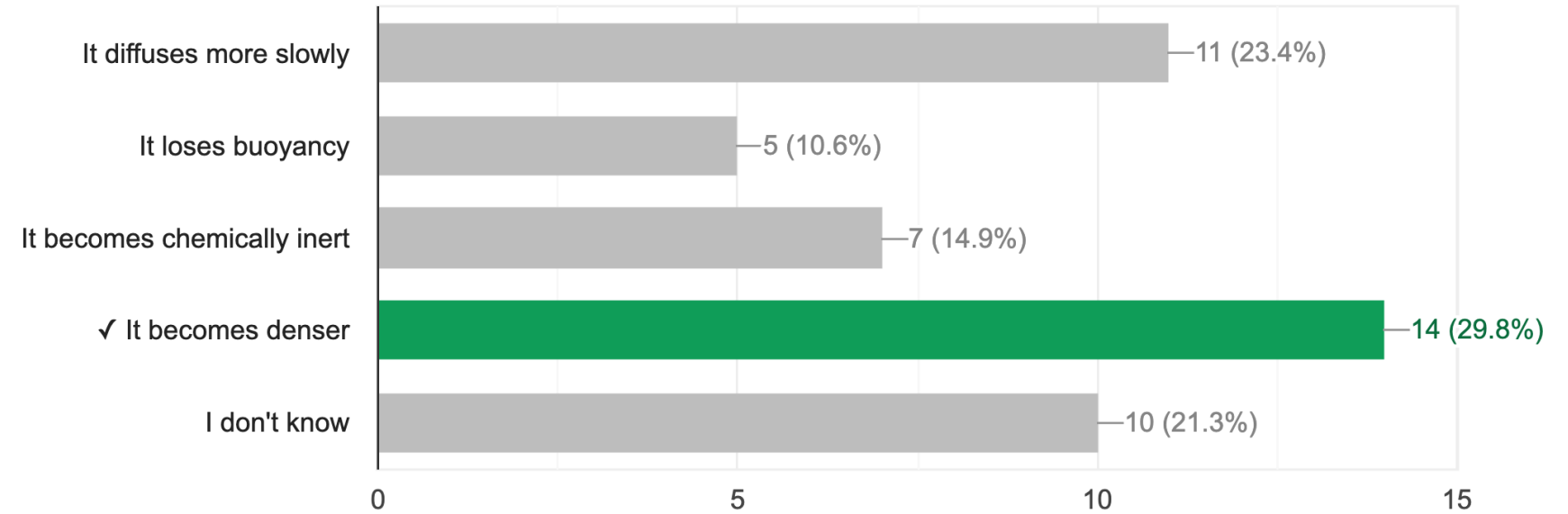


■ Incorrect ■ Correct ■ I don't know

Questions

What is the key advantage of CO₂ being in a supercritical state at depths greater than ~1 km?

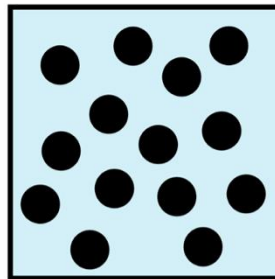
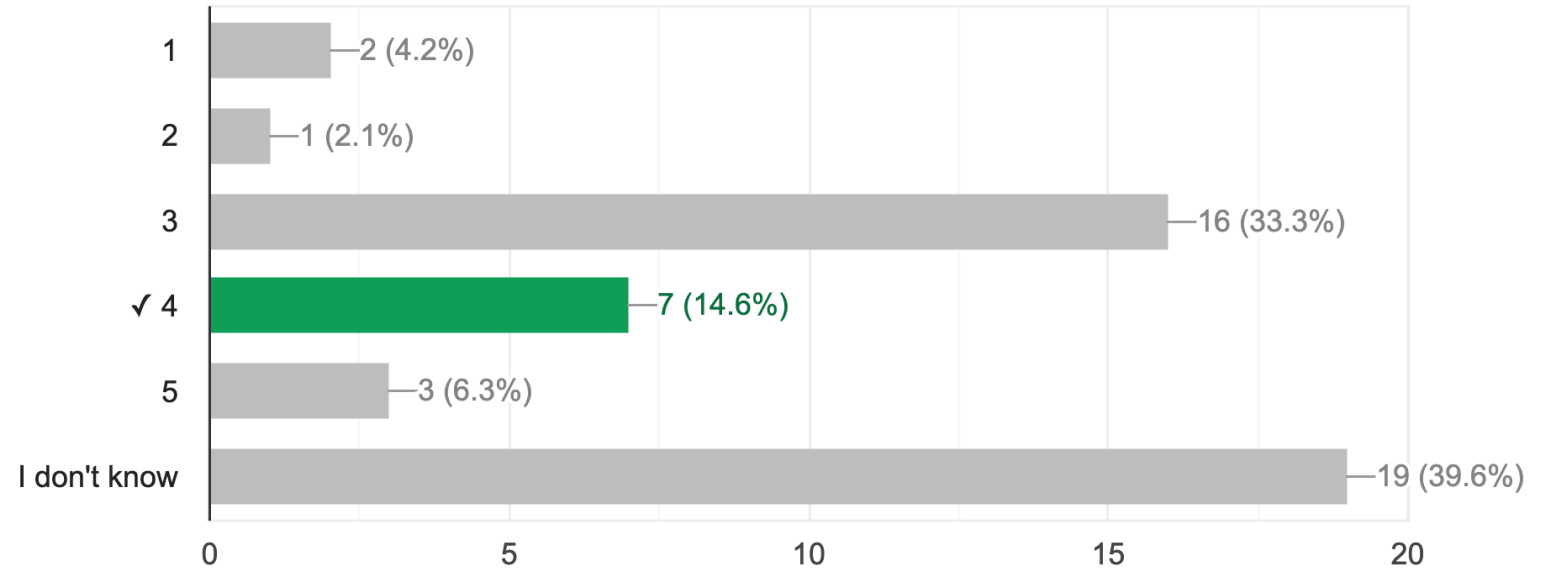
14 / 47 correct responses



Questions

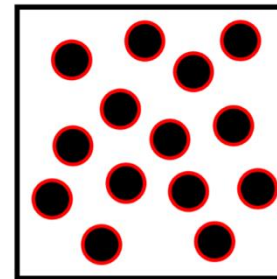
How many functionals does a 3D microstructure need in order to be completely described mathematically?

7 / 48 correct responses



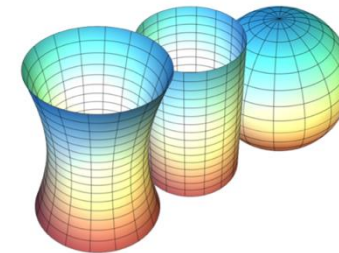
$$M_0 = \int_{\Omega} dV$$

Volume



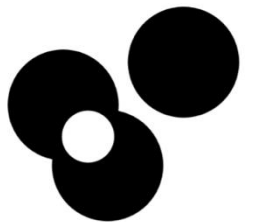
$$M_1 = \int_{\partial\Omega} dS$$

Surface Area



$$M_2 = \int_{\partial\Omega} \left(\frac{1}{r_1} + \frac{1}{r_2} \right) dS$$

Mean Curvature



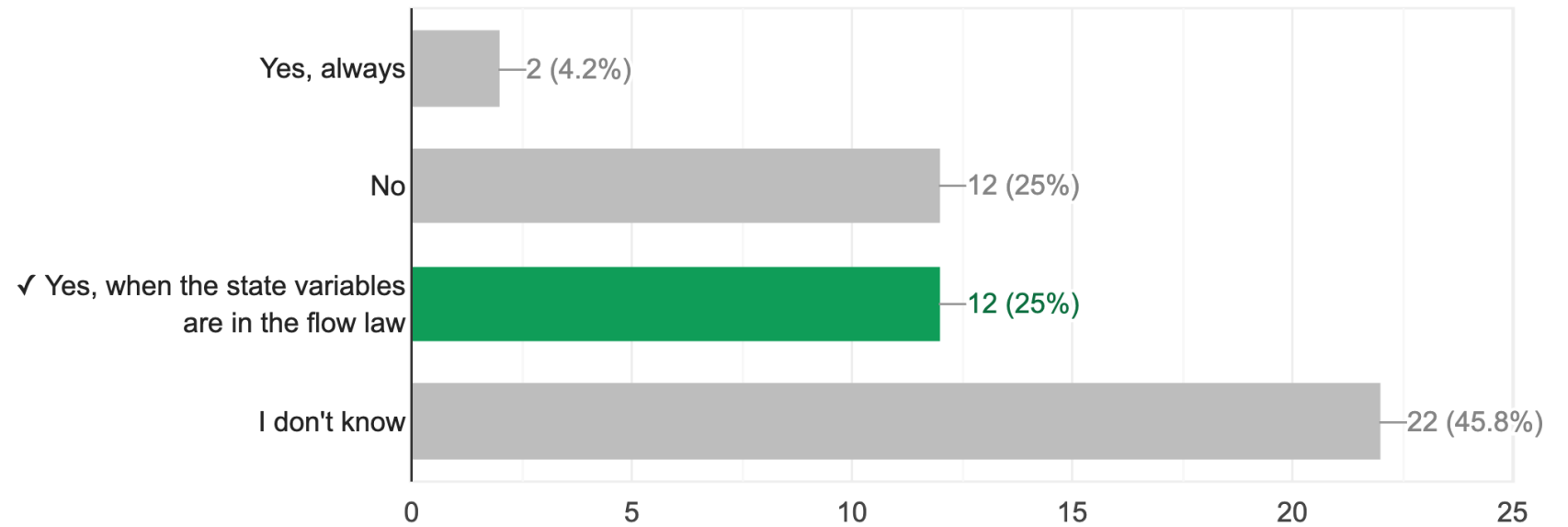
$$M_3 = 4\pi\chi(\Omega)$$

Euler Characteristics

Questions

Are THMC couplings regularizing the thickness of shear localization?

12 / 48 correct responses



Questions

Are tight multi-physics couplings creating potential new localization patterns?

14 / 46 correct responses

